Small RNAs in Germline Development.

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Public Summary:

Scientific Abstract:
One of the most important and evolutionarily conserved strategies to control gene expression in higher metazoa is posttranscriptional regulation via small regulatory RNAs such as microRNAs (miRNAs), endogenous small interfering RNAs (endo-siRNAs), and piwi-interacting RNAs (piRNAs). Primordial germ cells, which are defined by their totipotent potential and noted for their dependence on posttranscriptional regulation by RNA-binding proteins, rely on these small regulatory RNAs for virtually every aspect of their development, including specification, migration, and differentiation into competent gametes. Here, we review current knowledge of the roles miRNAs, endo-siRNAs, and piRNAs play at all stages of germline development in various organisms, focusing on studies in the mouse.